



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,090	11/06/2001	Hiromitsu Takei	81868.0038	1996
26021 7590 12/01/2003				
HOGAN & HARTSON L.L.P. 500 S. GRAND AVENUE SUITE 1900 LOS ANGELES, CA 90071-2611				
EXAMINER NGUYEN, HANH N				
ART UNIT 2834		PAPER NUMBER		

DATE MAILED: 12/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/036,090	TAKEI, HIROMITSU <span style="float: right;">W</span>	
	<b>Examiner</b>	<b>Art Unit</b>	
	Nguyen N Hanh	2834	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 3-9, 21 and 23-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21 and 23-29 is/are allowed.
- 6) ☒ Claim(s) 1 and 3-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 08 April 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |                                                                                              |                                                                             |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other:                                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1,6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagate et al. in view of Matsuo et al.

Regarding claim 1, Nagate et al. show a rotor for a permanent magnet embedded motor (Fig. 1), the rotor comprising: a rotor core made of magnetic material (Col. 7, lines 43-45) and having a plurality of slits (long and narrow cuts or openings) formed at corresponding poles; and at least one magnet embedded in at least one of the slits, wherein at least magnet is a plate-shape magnet, wherein a length dimension and a width dimension of the at least one magnet in a cross-section orthogonal to an axis of the rotor are both greater than a corresponding dimension of the at least one of the slits (Fig. 1 shows width dimension of the magnet is greater than corresponding dimension of the slit and length dimension of the magnet is greater than corresponding dimension of slit as described in Col. 8, lines 22-24), and the at least one plate-shape magnet is fitted in the at least one of the slits under pressure (Col. 8, lines 18-24).

Nagate et al. do not show clearly that the magnet is bond magnet.

However, Matsuo et al. disclose a rotor for a permanent magnet embedded motor wherein the magnet is bond magnet for the purpose of improving elastic characteristic of the magnet.

Since Nagate et al. and Matsuo et al. are in the same field of endeavor, the purpose disclosed by Matsuo et al. would have been recognized in the pertinent art of Nagate et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Nagate et al. by using bond magnet and at least one bond magnet is formed from a plate-shaped bond magnet as taught by Matsuo et al. for the purpose of improving elastic characteristic of the magnet.

Regarding claim 6, Nagate et al. also show another embodiment wherein each of the slits comprises a plurality of protrusions formed on an inner surface thereof to extend into a corresponding bond magnet fitted in the slit (Fig. 5).

Regarding claim 7, Matsuo et al. also show a rotor wherein the at least one bond magnet is flexibly compressive and flexibly contracted in the corresponding frame for the purpose of holding the magnet.

Since Nagate et al. and Matsuo et al. are in the same field of endeavor, the purpose disclosed by Matsuo et al. would have been recognized in the pertinent art of Nagate et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Nagate et al. by using bond magnet so that

the at least one bond magnet is flexibly compressive and flexibly contracted in the corresponding slit as taught by Matsuo et al. for the purpose of holding the magnet.

Regarding claim 8, the structure disclosed by Nagate et al., modified by Matsuo et al. would have at least one bond magnet is flexibly compressive in at least one of a length direction and a width direction thereof and flexibly contracted in the corresponding slit in at least one of the length direction and the width direction.

Regarding claim 9, the structure disclosed by Nagate et al., modified by Matsuo et al. discloses the claimed invention except for showing a rotor according wherein at least one of the length dimension and the width dimension of the at least one bond magnet is approximately 5% larger than the corresponding dimension of the at least one of the slits. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make a rotor according wherein at least one of the length dimension and the width dimension of the at least one bond magnet is approximately 5% larger than the corresponding dimension of the at least one of the slits, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

2. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagate et al. in view of Matsuo et al. and further in view of Narita et al.

Regarding claim 3, Nagate et al. and Matsuo et al. show all limitations of the claimed invention except showing a rotor wherein each of the slits has an opening section in one of an arc shape, a V shape.

However, Narita et al. disclose a rotor wherein each of the slits has an opening section in one of an arc shape, a V shape (Fig. 14) for the purpose of embedding the magnets.

Since Nagate et al. and Matsuo et al. and Narita et al. are in the same field of endeavor, the purpose disclosed by Narita et al. would have been recognized in the pertinent art of Nagate et al. and Matsuo et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Nagate et al. and Matsuo et al. by forming opening section in one of an arc shape, a V shape as taught by Nagate et al. for the purpose of embedding the magnets.

Regarding claim 4 and 5, Narita et al. also show at least one of the slits has a partially narrow section in the width dimension thereof (Fig. 19) and the width dimension of the at least one of the slits changes in a length direction thereof (Fig. 1).

### ***Response to Arguments***

3. Applicant's arguments filed on 9/3/2003 have been fully considered but they are not persuasive. The applicant's argument is on the ground that Nagate does not show a rotor wherein "a length dimension and a width dimension of the at least one bond magnet in a cross-section orthogonal to an axis of the rotor are both greater than a corresponding dimension of the at least one of the slits". The Examiner respectfully disagrees with the Applicant. Apart from slight difference in the structure of the opening to insert the magnet, Fig. 2 of Nagate clearly show a slit (Webster's dictionary interprets a slit as a long narrow cut or opening) formed between the protuberances 9 and it is

inherent that the length dimension of the magnet in a cross-section orthogonal to an axis of the rotor is greater than the length dimension of the slit because the protuberances suffer deflection or plastic deformation in the outward direction R (Col. 8, lines 22-25). The length dimension of the magnet is less than the length dimension of slot 6 but greater the length dimension of the slit as recited in claim 1. The width dimension of the magnet is clearly greater than the width of the slit because the width of the slit because the width of the slit is defined by the height of projection 9 toward the other end of the slot 6. In short, the claims are given the broadest reasonable interpretation. Therefore, the rejection is still deemed proper.

***Allowable Subject Matter***

4. Claims 21, 23-29 are allowed.
5. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not show a rotor for a permanent magnet embedded motor, the rotor comprising: a rotor core comprising a plurality of stacked plates of a magnetic material and having a plurality of slits formed at corresponding poles; and at least one bond magnet embedded in at least one of the slits, wherein a length dimension and a width dimension of the at least one bond magnet in a cross-section orthogonal to an axis of the rotor is are both greater than a corresponding dimension of the at least one of the slits, and the at least one bond magnet is fitted in the at least one of the slits under pressure and an outer peripheral face of the at least one bond magnet is fitted into an entire inner peripheral face of the plurality of stacked plates of the rotor core wherein no space is left between the bond magnet and the stacked plate

Art Unit: 2834

regardless of an unevenness of the inner peripheral face of the plurality of stacked plates of the rotor core.

***Conclusion***

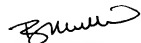
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (703) 305-3466. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

November 24, 2003

  
BURTON S. MULLINS  
PRIMARY EXAMINER